CONTENTS

Preface	vi
List of Committees and Sponsors	vii
List of participants	iz
HIGH T_c SUPERCONDUCTORS	
BS. Hong and T.O. Mason, High temperature electronic conduction mechanisms in YBa ₂ Cu ₄ O ₈	3
A. Nakamura, A chemical approach to high T_c superconductivity	9
H. Asano, Structural study of oxide superconductors by neutron diffraction	17
K. Tsukamoto, H. Shimojima, M. Ishii and C. Yamagishi, Influence of chemical composition of Bi(Pb) system superconductive films on their sensitivity to weak magnetic fields	23
N.G. Eror, P. Krishnaraj and L. Muldawer, Synthesis and structure of high temperature superconducting powders	31
M. Yoshimura, S. Inoue and Y. Ikuma, Effect of temperature and nonstoichiometry on hydration of YBa ₂ Cu ₃ O _{7-x} at low H ₂ O pressure	39
H. Yamauchi, T. Kawano, F. Munakata and S. Tanaka, Oxygen nonstoichiometry in superconducting Sr-free Bi cuprates	47
Y. Shimakawa, Y. Kubo, T. Manako, H. Igarashi, F. Izumi and H. Asano, Oxygen and cation nonstoichiometry in Tl-based superconductors	53
M. Itoh, T. Sawada, R. Liang, H. Kawaji and T. Nakamura, Oxygen-deficient and ordered perovskite-type solid solution system $Ba_{1+x}Bi_{1-x}O_y$ ($0 \le x \le 0.5$, $3.00 \ge y \ge 2.75$)	57
S. Yamaguchi, K. Yasui, F. Matsumoto, K. Terabe, T. Sukigara and Y. Iguchi, Defect chemical study of $Nd_{2-x}Ce_xCuO_{4-\delta}$	63
FUNDAMENTAL STUDIES ON NONSTOICHIOMETRIC COMPOUNDS	
Y. Larring, T. Norby and P. Kofstad, Protonic conductivity in Ca-doped yttria	73
A. Yoshida, T. Takahashi and T. Soma, The effect of the concentration of interstitial oxygens on valence change of the transition metal impurities in β "-alumina	79
N. Kieda, S. Nishiyama, K. Shinozaki and N. Mizutani, Nonstoichiometry and electrical properties of La ₂ CuO ₄ and La ₂ (Cu, Ni)O ₄	85
M.F. Trubelja and V.S. Stubican, Ionic conductivity in the hafnia-R ₂ O ₃ systems	89
A. Steinbrunn, A. Tahri and J.C. Colson, Electrical transport in polycrystalline nickel molybdate NiMoO ₄	99
T. Tsuji and K. Naito, Diffusion mechanism in iron-group metal chalcogenides	105
J. Mizusaki, H. Tagawa, K. Naraya and T. Sasamoto, Nonstoichiometry and thermochemical stability of the perovskite-type $\text{La}_{1-x}\text{Sr}_x\text{MnO}_{3-\delta}$	111
J. Nowotny, Interface defect chemistry of oxide ceramic materials. Unresolved problems	119
J. Nowotny and M. Sloma, Surface electrical properties of BaTiO ₂ at elevated temperatures	129

J. Nowotny and M. Rekas, Defect chemistry of BaTiO ₃	135
O.T. Sørensen and M. El Sayed Ali, Structural ceramics based on nonstoichiometric zirconia – high temperature long term stability materials for oxygen sensor applications prepared by codoping	155
K. Nagata, R. Nishiwaki, Y. Nakamura and T. Maruyama, Kinectic mechanisms of the formations of MgCr ₂ O ₄ and FeCr ₂ O ₄ spinels from their metal oxides	161
Y. Kaneko and H. Kojima, Synthesis and electrical conductivity of vanadium bronzes by molten salt electrolysis	167
Y. Moriyoshi, S. Komatsu, K. Okada, T. Ishigaki and N. Setaka, Structural defects of a diamond film	175
T. Tsukahara, M. Yoshimoto, H. Nagata, T. Hashimoto, S. Gonda and H. Koinuma, Preparation of SrCuO _y film in ultra-high vacuum system	183
FUEL CELL, BATTERY AND NUCLEAR MATERIALS	
Hj. Matzke and A. Turos, Mechanisms and kinetics of leaching of UO2 in water	189
T. Matsui, Y. Arita and K. Naito, High temperature heat capacities and electrical conductivities of UO ₂ doped with Ti, Nb and Sc	195
T. Fujino, N. Sato, T. Yamashita and H. Tagawa, Structural study on rhombohedral nonstoichiometric solid solution $Sr_yU_{1-y}O_{2+x}$ – use of an electrostatic method for atom parameter and stability calculations	201
T. Ogawa, R.A. Verrall, Hj. Matzke and P.G. Lucata, Release of ion-implanted Kr from $(Th, U)O_2$ – effect of matrix oxidation	211
M. Yamawaki, Nonstoichiometry and relevant thermochemical properties of thorium and thorium-uranium monocarbides	217
M. Katsura, A thermodynamic analysis of nitrogen-rich uranium sesquinitride formation by the reaction of uranium with ammonia	225
G.F. Carini II, H.U. Anderson, D.M. Sparlin and M.M. Nasrallah, Electrical conductivity, Seebeck coefficient and defect chemistry of Ca-doped YCrO ₃	233
Author Index	245
Subject Index	249

The following contributions to this workshop will appear in one of the future issues of this journal:

- T. Kawada, N. Sakai, H. Yokokawa, M. Dokiya and I. Anzai, Reaction between solid oxide fuel cell materials
- C.B. Alcock and J.J. Carberry, The preparation and properties of highly conductive nonstoichiometric oxide catalysts
- Y.L. Zi, S.Z. Tong and W.C. Zheng, Study on the nonstoichiometry of tin oxides by the coulometric titration
- Q. Zhang, T. Atake and Y. Saito, Oxygen nonstoichiometry in superconductor $Ba_2RCu_3O_{7-y}$ (R=Y, Ho) and application of coulometric titration